



Slick Rock, Colorado, Disposal Site

Long-Term Surveillance and Maintenance Program



U.S. Department of Energy
Grand Junction Office

FACT SHEET

The Grand Junction Office has provided cost-effective and efficient stewardship for more than 10 years

Overview

Uranium ore was processed near Slick Rock, Colorado, between 1931 and 1961. The milling operations created process-related waste and tailings, a sandlike material containing radioactive materials and other contaminants. The U.S. Department of Energy (DOE) encapsulated the tailings in an engineered disposal cell in 1996.

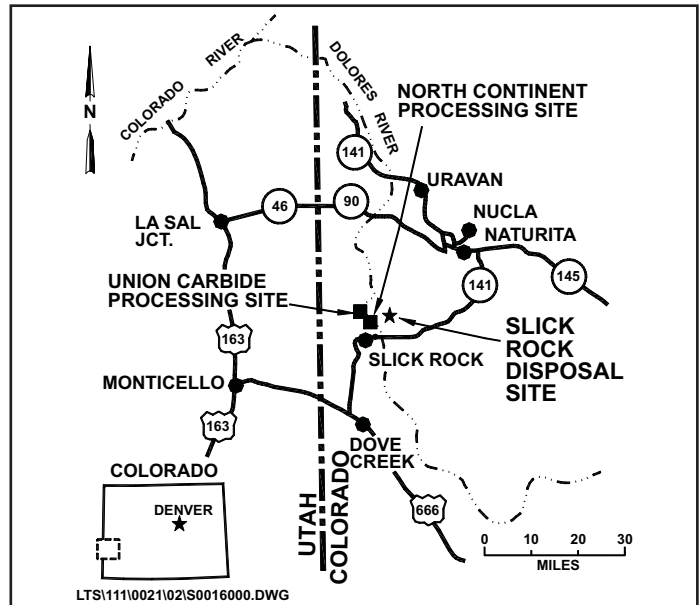
The U.S. Nuclear Regulatory Commission included the Slick Rock Disposal Cell under general license in 1996. DOE is responsible, under the general license, for the long-term custody, monitoring, and maintenance of the site. The DOE Long-Term Surveillance and Maintenance (LTSM) Program at the DOE Grand Junction (Colorado) Office is responsible for the long-term safety and integrity of the disposal site.

In 1988, DOE established the LTSM Program to provide stewardship of disposal cells that contain low-level radioactive material after completion of environmental restoration activities. The mission of the LTSM Program is to ensure that the disposal cells continue to prevent release of contaminated materials to the environment. These materials will remain potentially hazardous for thousands of years. As long as the cells function as designed, risks to human health and the environment are negligible.

The LTSM Program maintains the safety and integrity of the disposal cell through periodic monitoring, inspections, and maintenance; serves as a point of contact for stakeholders; and maintains an information repository at the DOE Grand Junction Office for sites in the LTSM Program.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act in 1978 (Public Law 95-604) that specified remedial action for 24 inactive millsites where uranium was produced for the Federal Government. DOE remediated these sites under the Uranium Mill Tailings Remedial Action Project and encapsulated the radioactive material in U.S. Nuclear Regulatory Commission-approved disposal cells. Cleanup standards were promulgated by the U.S. Environmental Protection Agency in Title 40 *Code of Federal Regulations* (CFR) Part 192. The U.S. Nuclear Regulatory Commission license was issued in accordance with 10 CFR 40.

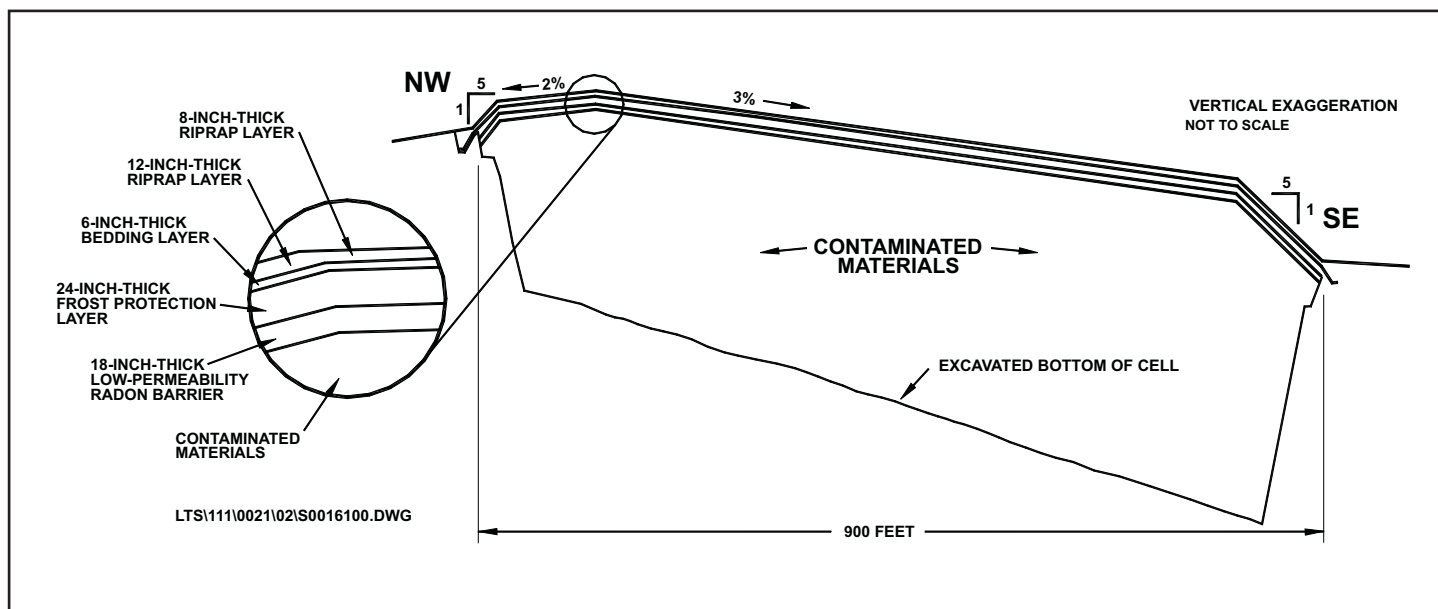


Slick Rock Disposal Site

The Slick Rock Disposal Site is located approximately 5 miles northeast of Slick Rock, Colorado. Land around the site is managed by the U.S. Bureau of Land Management and is used predominantly for grazing; the region is sparsely populated.

Union Carbide Corporation and North Continent Mining Company operated separate mills along the Dolores River intermittently between 1937 and 1961. Uranium was extracted from sandstone ore, creating approximately 1 million tons of tailings and other contaminated materials. The State of Colorado and the U.S. Nuclear Regulatory Commission concurred in DOE's decision to relocate the tailings from the two millsites to a U.S. Environmental Protection Agency-compliant disposal cell at Burro Canyon. Remedial action began in 1995 and was completed in December 1996. The disposal cell contains 1,140,000 dry tons of contaminated material with a total activity of 175 curies of radium-226.

The disposal site is situated above the Dolores River floodplain on a broad relatively flat bench. East of the cell is Burro Canyon, an ephemeral drainage to the river. The disposal cell was excavated into sandstone and shale of the Burro Canyon member of the Dakota Sandstone.



Northwest-Southeast Cross Section of Slick Rock Disposal Cell

These strata crop out northeast of and down dip from the site. Local groundwater in the Burro Canyon member is classified as limited use because of low yield.

Cell Design

The Slick Rock Disposal Cell measures 520 feet by 840 feet at the base and occupies an area of 12 acres on the 62-acre site. The cell was excavated 7 to 20 feet below grade so that the bottom of the contaminated materials would be placed below a permeable layer of Burro Canyon member sandstone that is exposed in the excavation wall.

Water levels in two standpipes are continuously monitored to ensure water does not rise to the level of the sandstone layer. The top of the cell is on grade at the northwest corner and rises 50 feet above the surrounding land on the other sides. Material from the cell excavation was stockpiled west of the cell, contoured, and revegetated. A wire fence surrounds the cell, and the site perimeter is marked with warning signs and permanent monuments.

A low-permeability radon barrier, consisting of clayey soil, was placed over the tailings to prevent precipitation from percolating through the contaminated materials into the underlying soils and to reduce radon emissions. The radon barrier is covered by compacted soil for frost protection. The cell design promotes rapid runoff of precipitation to minimize leachate. The outer layer of the cell consists of rock (riprap) placed over a layer of granular bedding material. The riprap provides erosion protection. Runoff flows off the side slopes of the site into the surrounding rock apron.

The site location was selected to minimize the potential for erosion and groundwater contamination. Disturbed areas surrounding the site were regraded and reseeded with native species.

LTSM Program Activities

The LTSM Program manages the site according to a long-term surveillance plan (LTSP) prepared specifically for the Slick Rock site. Under provisions of the LTSP, the LTSM Program (1) conducts annual inspections of this site to evaluate the condition of surface features, (2) performs site maintenance as necessary, and (3) monitors the water level in two standpipes in the disposal cell.

Under the provisions of the LTSP, the LTSM Program will monitor transient water levels within the cell to demonstrate the effectiveness of the cell in isolating the encapsulated wastes from the sandstone layer in the Burro Canyon member. This layer is not a water resource because of low yield, and no down-dip seeps have been observed. Therefore, no groundwater remediation is required. DOE will address any groundwater issues at the Union Carbide and North Continent processing sites.

Contacts

For more information about the LTSM Program or about the Slick Rock Disposal Site, contact

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<http://www.gjo.doe.gov/programs/ltsm>